

FEATURES:

- Complete low-cost Development system.
- Dual or single AUDIO cassette interface.
- EPROM programming for TMS 25xx and TMS 27xx devices.
- 4K bytes of RAM on-board.
- On-board EPROM supporting:
 - Text Editor
 - Symbolic Assembler
 - Relocating Loader
 - EPROM Programming
 - I/O Scheduler and Handler
 - Debugger
- Uplink to AMPL Development system.
- EIA Communication with other Computers.

DESCRIPTION:

Using the TM990/302 Software Development Module it is possible to construct a very low cost development system. It consists of a CPU module, power supply, audio cassette, software development board and EPROM programmer personality card. The end algorithm is generally related to industrial control with less than 500 lines of code and 10 to 20 target systems in production.

The heart of this low-cost software development system is the TM990/302 Software Development Board; typical power requirement is +12V @ 132 mA, -12V @ 55 mA, +5V @ 830 mA and 35 to 55V @ 80 mA. This module is used for developing assembly language software to be used on 990/9900 family microprocessor based system. The TM990/302 provides dual audio cassette interfaces, both static RAM and ROM memory, and hardware circuitry to aid in the programming or read-only memory devices. Used in conjunction with either the TM990/100MA or TM990/101MA CPU modules, the TM990/302 provides a complete standalone software development system offering support for program generation, editing, assembly, debugging, and EPROM programming.

To create or update the source program, the text editor provides manipulation of individual lines of code. The designer may delete, insert, print and resequence text from his keyboard. The text editor handles programs of any length by segmenting the source code into "buffer" blocks. It controls buffer loading and storage into cassette-tape memory. The buffer is enlarged by plugging in memory-expansion cards, which also expand the amount of target system memory available for execution.

The next step in program development is a two pass assembly of TMS 9900, SBP 9900, TMS 9940, TMS 9980 instructions sets into absolute standard 9900 object code. This two pass assembler allows four-character symbolic addressing. The assembly listing output, including error messages, is routed to a user chosen device.

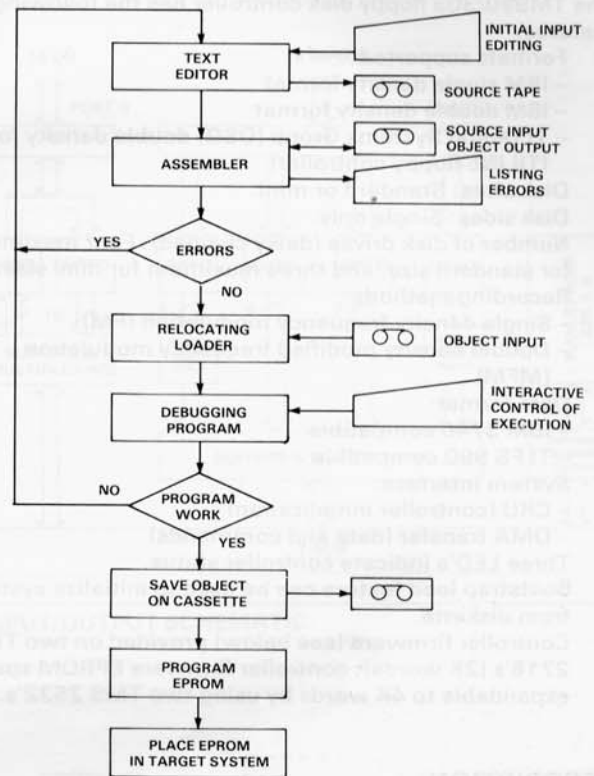
Seven debug commands aid program development after the loader program puts the assembled object into memory. Multi-step trace, software breakpoints and data inspection/changes are featured.

After debug, the EPROM programmer can be invoked to program EPROM's, read back EPROM's into memory, or compare EPROM contents to memory. Byte and word serial formats are available. The EPROM programmer is able to program the following EPROM's: TMS 2708, TMS 2716, TMS 2516, TMS 2532 and TMS 2508.

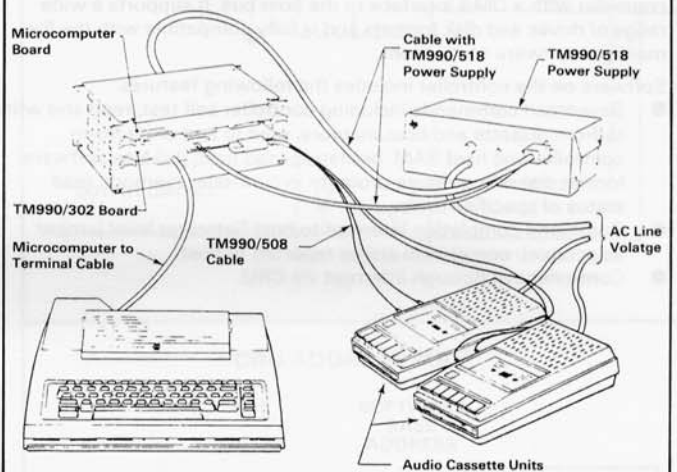
ORDERING INFORMATION:

Part number	
TM990/302	Software Development Module including Audio Cassette interface cable.
TM990/508	Replacement Audio cassette cable.
TM990/514	Personality Module for programming TMS 27XX EPROMS.
TM990/515	Personality Module for programming TMS 25XX EPROMS.
TM990/451D	Optional Development Power Basic EPROM set.
TM990/452D	Optional Development Power Basic enhancement package POWER BASIC.

SOFTWARE DEVELOPMENT EXECUTION:



CONNECTORS:



SOFTWARE COMMAND SUMMARY:

TEXT EDITOR COMMANDS:

- D Delete lines n thru m
- I Insert at line n with optional line-number auto-increment by m
- K Keep (store) buffer and print new top line in the buffer
- P Print lines n thru m
- Q Flush the input file until end of input file and return to executive
- R Resequene output line numbers, giving the initial line number and the increment

DEBUG COMMANDS:

- SB Set software breakpoint and execute
- IM Inspect/change memory
- IC Inspect/change CRU
- IR Inspect/change registers
- RU Run program and trace conditional jumps
- ST Single step for 1 or more instructions
- DM Dump memory to specified cassette in object format